What is claimed is:

1. A process for making a gradient material, comprising the steps of:

employing a screw extruder system having material input conditions, operating conditions, and hardware element configurations; and,

introducing disturbances into at least one of the material input conditions, operating conditions, or hardware element configurations wherein a gradient material is formed by the screw extruder system.

2. The process of claim 1, wherein the screw extruder system comprises a twin screw extruder system.

3. The process of claim 2, wherein the disturbances are selected from the group of step disturbances, linear ramp disturbances, non-linear ramp disturbances, or a combination thereof.

4. The process of claim 3, wherein at least one material input condition is disturbed.

5. The process of claim 4, wherein the at least one material input condition comprises at least one ingredient feeding rate.

6. The process of claim 3, wherein at least one operating condition is disturbed.

7. The process of claim 6, wherein the at least one operating condition is selected from the group of a screw speed, system temperature, system pressure, or a combination thereof.

8. The process of claim 7, wherein the at least one operating condition comprises the screw speed.

9. The process of claim 2, wherein the hardware element configurations are selected from the group of a screw geometry, die geometry, ingredient feeding locations, or a combination thereof.